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October 28, 2015

Mr. Joseph Giitter
Director, Division of Risk Assessment
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Availability of NUREG-2178, "Refining and Characterizing Heat Release Rates from Electrical Enclosures During Fire (RACHELLE-FIRE), Volume 1: Peak Heat Release Rates and Effect of Obstructed Plume."

Dear Mr. Giitter:

On behalf of the nuclear energy industry, the Nuclear Energy Institute (NEI)¹ would like to thank you for your October 1, 2015 letter concerning the availability for use of electrical enclosure heat release rates (HRRs) contained in NUREG-2178. We appreciate the special effort to make the results of the report available for use prior to the final publication of the report. As noted in the subject report, the work undertaken to develop the report involved collaboration between NRC-RES and EPRI under a memorandum of understanding between the organizations. The working group included technical experts in experimental test programs, fire PRA, operation experience, fire modeling and circuit analysis. This group was assembled for the specific purpose of integrating the information available concerning heat release rates for electrical enclosures, the members were carefully chosen for their expertise, and there were significant interactions that led to formulation of their inputs.

Several of the statements included in your October 1, 2015 letter require further clarification in order to avoid misinterpretation for those utilizing NUREG-2178. NEI offers the following interpretation of the letter concerning any potential restrictions for how the results of NUREG-2178 should be implemented.

Statement in letter: "As a result, the working group produced the information contained in NUREG-2178, which may not represent or bound all cases in NPPs and, therefore, should be used with caution. It remains NRR's expectation that licensees provide an acceptable level of detail and justification in their submittals to

¹ The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.

allow the staff to make an independent determination of acceptability based on the technical merits and completeness of a submittal.

Industry interpretation of Statement: NUREG-2178 utilized results that bound the 98th percentile of the fire experimental data and account for more extreme test experiences including the Sandia and VTT programs. These tests, which were not performed to define inputs to a realistic PRA model, included large ignition sources, high fuel loading and creative wiring arrangements designed to maximize the fire spread potential. The heat release rate (HRR) category is, in most cases, determined from visual inspection to determine cabinet volume. The method in NUREG-2178 first recommends external visual inspection (without the need to open and inspect the internals of a cabinet) and for certain classifications an optional detailed fuel assessment can be performed to potentially justify a lower heat release rate. NUREG-2178 specifies that, if using the low or very low distributions, there be an adequate basis (e.g., pictures, assessment of combustible loading and arrangement) to justify use of these categories. The justifications for HRRs developed for the new classifications contained in NUREG-2178 will result in a more consistent assessment of heat release rates. Therefore, electrical enclosure configurations that are addressed in NUREG-2178 do not require additional justification in individual submittals beyond that already noted in the NUREG.

Statement in the letter: *"In addition, licensees choosing to apply the information contained in NUREG-2178 without physically assessing the internal contents and configuration of an electrical enclosure but who later determine that the internal contents or configuration were non-conservative (e.g., amount of combustible wire insulation or physical arrangement of wiring) or otherwise inconsistent with the assumptions made in NUREG-2178, shall maintain their design basis documents in accordance with NFPA 805, Section 2.7.2 to reflect the condition, enter the condition in their corrective action program, and take actions to address the condition in accordance with their fire protection quality assurance program."*

Industry interpretation of Statement: The HRR distributions provided in NUREG-2178 account for a wide range of potential electrical enclosure configurations in NPPs. The base or "default" distributions have been developed such that they can be applied without the need to open and inspect the internals of a cabinet. This approach was intentionally created to account for a variable distribution that does not require the analyst to open a cabinet since it is unrealistic to assume that a plant can inspect, maintain, and document the internals of every cabinet (more than 1000 for some units).

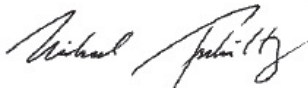
The industry's understanding is that this qualification was added to convey that if an electrical cabinet condition is discovered to differ substantially from that modeled in the PRA, the PRA should be corrected to incorporate the appropriate heat release rates. The industry notes that this is a standard practice and that licensees would accomplish under their PRA maintenance and upgrade process in accordance with the licensee's NFPA 805 configuration control program.

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We request that you provide a written response to this letter to convey that the industry's understanding of the intent of this qualification is correct, and that the discussion in the original letter does not limit the use of the information contained in the NUREG.

If you have any questions or require additional information, please contact me (202-739-8083; mdt@nei.org).

Sincerely,

A handwritten signature in black ink, appearing to read "Michael D. Tschiltz". The signature is written in a cursive style with a large, stylized initial "M".

Michael D. Tschiltz

C: Dr. Jennifer L. Uhle, NRR, NRC
Mr. K. Steven West, RES, NRC
Mr. Richard Correia, RES/DRA, NRC
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